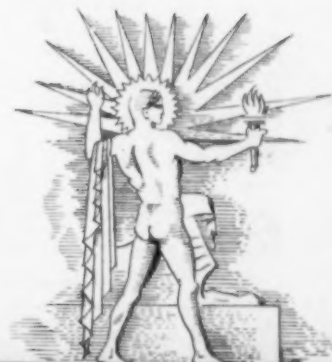
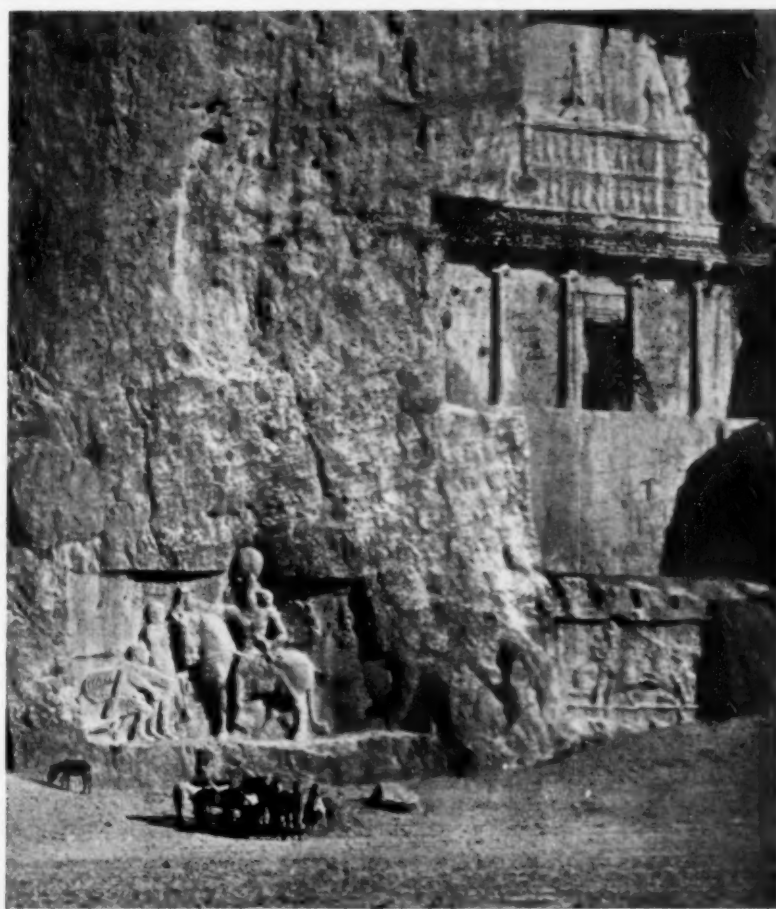


MAY 31 1932

SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE •



MAY 28, 1932

New Picture of Ancient Splendor

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Summary ofCurrent
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DO YOU KNOW THAT

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The U. S. Food and Drug Administration has surveyed last season's pack of tomato juice, and reports that the 1931 output is the best to date and that tomato juice as a beverage appears to have "come to stay."

When an insect plague threatens vegetation in a given area, birds of the region usually mobilize there, living largely on the plague insects.

A new and important safety device for coal miners is a glass tube containing palladium chloride, which turns dark if dangerous gases are escaping.

The U. S. Department of Agriculture states that there are about eighteen distinct varieties of cheese: the 400 or more names given to cheeses are of local origin.

The U. S. Forest Products Laboratory finds that in nailing the handles of implements blunt-pointed nails are less likely to split the wood than sharp nails.

A map of the world made by a Turkish navigator in 1513 was discovered not long ago in a library in Istanbul.

Ground plans of prehistoric pueblos in the Mesa Verde National Park are being mapped for permanent record.

A new radio development in Switzerland is a radio-telephone system whereby telephone subscribers can enjoy radio programs without owning a radio set.

Belgium still has a wooden shoe industry, much of the production being shipped to France, Germany, and the Netherlands.

Raindrops and snowflakes are usually charged with electricity.

Poultry experts at the Ohio State University find that when chickens are fed a ration rich in vitamins A and D they lay eggs that have better food value than if the ration is low in these valuable vitamins.

WITH THE SCIENCES THIS WEEK

CURIOSITY-AROUSING questions are prepared concerning the most interesting and important news in each issue. These questions should be a mental stimulant for the adult reader and a boon to the teacher who uses the Science News Letter to add zest to her classroom instruction.

Book reference in italic type is not the source of information of the article, but a reference for further reading on the subject of the article. Books cited can be supplied by Librarian, Science Service, at publisher's price, prepaid in U. S.

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PSYCHOLOGY

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Why did a child tell of seeing people no bigger than toys? p. 338. *Studies in Deceit—Hugh Hartsborne and Mark A. May. New York, Macmillan, 1928, \$4.50.*

AGRICULTURE

Mysterious Disease Seems To Lurk in Northwestern Grain

With Actual Cause Unknown, Fungus, Bacterium Or Soil Poison Are Thought Possibly Responsible

GRAIN from certain sections of the great cereal-growing region of the Northwest seems to harbor the cause of a serious and sometimes fatal disease afflicting farm animals and possibly also human beings. Researches indicate very strongly that when several different kinds of grain raised in parts of the region are fed to laboratory animals, these suffer from a serious weakening of the bones, breakdown of the liver tissue, hemorrhage, skin disturbances and other symptoms. There are also indications that farm animals get the disease from eating hay as well as from the suspected grains. A few human cases showing somewhat comparable symptoms have been reported from hospitals.

The actual cause of the disease is still quite unknown. Conjectures have been made that it may be a fungus harbored by the grains, a bacterium, or a poison drawn from the soil or formed in the grain because of peculiar soil or climatic conditions. But these are only guesses, and the real answer must await more extensive investigation. Scientists of the U. S. Department of Agriculture expect to grow grain under controlled conditions in the areas from which the disease is reported. They will feed this grain to experimental animals to obtain more definite data than are now available.

Four Carriers

The four grains known to carry the disease are corn, wheat, barley and emmer. The latter is a relative of wheat, and seems to have been the first grain cultivated by the ancient civilizations of Babylonia and Egypt. It is less grown now, but is still valuable in many semi-dry regions.

Efforts will also be made to determine whether the malady is confined to specific soil types. If this proves to be the case, the scientists will then try to find what soil elements or conditions are responsible for the trouble.

Before grains were pointed out as responsible for the disease, a very careful checking up was made. Large numbers

of rats were fed on grain from the suspected area, and "controls" were fed from grain raised elsewhere. The controls remained healthy, while the others showed marked slowing down of growth with other abnormalities.

Trouble with poultry in the "poison area," apparently traceable to the same disease-bearing grains, manifests itself largely in the failure of eggs to hatch. The chick develops, almost reaching the point of hatching; some of them do hatch in a lame sort of way. But when the chicks, living or dead, are freed from the shells, they are seen to be cripples, with deficient leg or wing bones, sometimes with abortive beaks, and invariably clad in a thin, stringy, hairlike growth instead.

May Become Serious

The experiments have been going on for more than a year until there is little doubt that the four grains named are real bearers of the disease. It is reported that local buyers have long been discriminating against grains from the affected area. If this practice should be-

come extensive, the economic consequences are bound to be very serious. It remains to be seen whether flour and other mill products made from the grains will produce nutritional disturbances in human beings.

The condition responsible for the present investigation seems not to be strictly new. Records of similar disturbances have been found running back for many years; but until the present time the malady was merely shoved aside as "alkali trouble" and not seriously considered.

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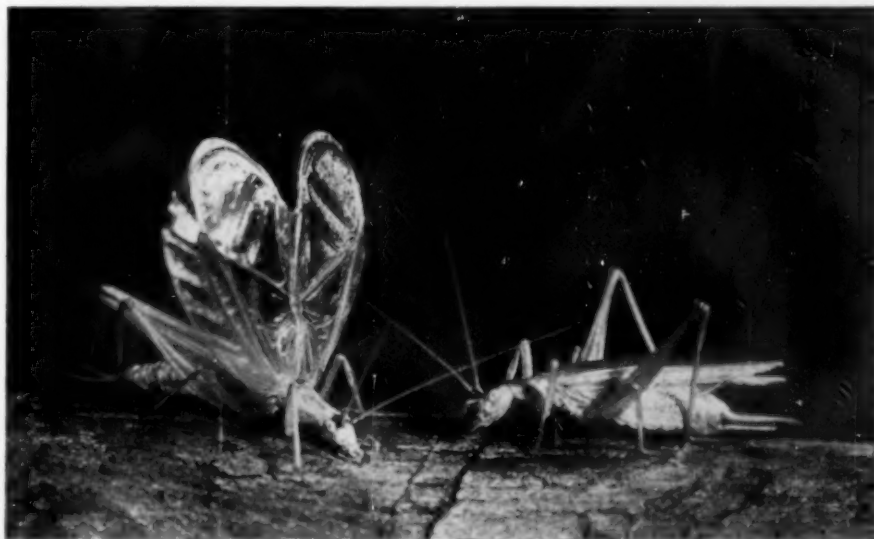
GEOGRAPHY

Shore of Hudson Bay Miles Wrong On Maps

THE EASTERN shore of Hudson Bay is shown as much as 25 miles out of place on existing maps, Dr. Noel J. Ogilvie, director of the Geodetic Survey of Canada, reported to the American Geophysical Union.

Dr. Ogilvie made this discovery in the course of an accurate geodetic survey of the Belcher Islands, an iron-bearing archipelago, last summer. The Belcher Islands themselves, he found, are shown on the same maps as much as thirty miles away from their true location. Hitherto these errors have had little or no practical significance; but with the development of a railroad to Fort Churchill and the opening of navigation to Europe in the summer the accurate location of shorelines becomes important.

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NIGHT LIFE IN THE TREETOPS

No Broadway night-club fiddler is more industrious than the pallid tree cricket—and none plays a tune more monotonous and persistent. Yet though he be no Kreisler, the tree cricket is still able to charm the female of his species with his "Liebesfreud." Much patience and a good lens enabled Cornelia Clarke to snap this musical insect idyll.

BIOCHEMISTRY

Ultraviolet Light Changes Carrot Pigment Into Vitamin A

Confirmation of British Experiments May Result in Large Scale Production and Introduction of Vitamin Into Foods

By DR. VICTOR COFMAN, Science Service Correspondent

VITAMIN A, the food factor that promotes growth and prevents infections, is produced when ultraviolet light of a particular wavelength acts on carotene, the yellow pigment found in carrots, yellow corn, butter, egg-yolk and other plant and animal substances, Drs. F. P. Bowden and C. P. Snow, of Cambridge University, announced in a report to *Nature*.

Ultraviolet light of wavelength 2650 Angstrom units transforms the mother substance, carotene, into the vitamin A. This light is too short to be seen by human eyes but it can be recorded on photographic plates.

The production of vitamin A was checked by the fact that the substance formed absorbs ultraviolet light in the way that known vitamin A does. It also yields a colored substance when treated with antimony chloride which is another test for vitamin A. The irradiated carotene has not yet been tested biologically upon animals, however.

Production of vitamin A from the yellow pigment, carotene, by action of ultraviolet light is another step to understanding the essential food elements that a few years ago were totally unknown.

Rapid progress has been made in the past few months in the chemistry of vitamin A. It is definitely known that carotene, such as used in the Cambridge University experiments, is the precursor of vitamin A. Other experimenters have shown that carotene is converted into the vitamin in the liver and early this year Prof. J. C. Drummond of University College, London, obtained vitamin A by splitting carotene into two products, one of which was the vitamin.

Prof. Paul Karrer of the University of Zurich, Switzerland, recently derived a formula for vitamin A and showed it to be a close chemical relative to artificial violet perfume.

The ultraviolet light which activated carotene into vitamin A is not contained

in sunlight. Vitamin A will not be known as a "sunshine vitamin" like anti-rachitic vitamin D which is produced by the irradiation of foods and the chemical ergosterol.

Production of vitamin A on a large scale and its manufacture in foods, such as bread and cereals, in the same way that vitamin D is introduced, can be expected to result if the British experiments are confirmed.

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PHYSIOLOGY

Headaches May Be Caused By Food Sensitiveness

HEADACHES may be caused by hyper-sensitiveness to certain foods, it appears from a report of Drs. Ray M. Balyeat and Herbert J. Rinkel of Oklahoma City to the American Medical Association. These physicians studied the various types of headaches due to this cause. They found that women have longer, less frequent attacks, while men have frequent attacks of shorter duration.

The symptoms vary in different persons and in different attacks in the same person. Several members of a family may

PSYCHOLOGY

Timing Winks Reveals More About Human Nature

SCIENTISTS at the psychological laboratory of the University of North Dakota have been studying the winks of human beings. The extent of the wink has been measured by a precise instrument. The inter-wink period has been exactly timed.

The average college student winks once every 5.99 seconds when he is not aware that his behavior is being watched and recorded, it was found by Dr. C.

have them. The only way to determine that the headaches are caused by food sensitiveness is by the trial method; avoidance of the offending food will give relief. This is also the best method of preventing the headache.

Many persons have headaches caused by inflammation of the nasal sinuses. In these cases the food sensitiveness is often a predisposing factor, Dr. Balyeat said. This occurs especially in hay-fever victims.

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PHYSICS

Cry of Tin Due To Birth of Twin Crystals

FOR YEARS chemistry professors have entertained classes by letting them listen to the "cry of tin," a creaking or tearing sound that is emitted by a bar of metallic tin when bent. Now Bruce Chalmers, working in the physics laboratory of University College, London, has discovered that this noise of tin is a sort of birth cry of the crystals in the metal becoming twins.

Using wires of single tin crystals, he stretched them and found that they lengthened without sound until the single crystal turned into two when the cry was heard. Cadmium and zinc were also made to produce cries. In his report to the scientific journal, *Nature*, Mr. Chalmers concludes the tin cry is produced by twinning in the metal and not by grinding of crystals against one another during bending as has previously been supposed, and that it has been heard only in those metals whose crystals twin when stretched.

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W. Telford and Beatrice O'Donnell Anderson, the psychologists who will report their research in the *Journal of Experimental Psychology*.

When the students knew that they were being watched, but were instructed to go ahead and wink at their natural rates, one wink to every 5.31 seconds was recorded.

Ten persons volunteered to sit in the laboratory and allow their winks to be

ARCHAEOLOGY

Stone Age Love Scene Found in Cavern of France



STONE "TEDDY BEAR"

Perhaps children of the man and woman pictured in the love scene played with this bear, or it may have been a charm used in dangerous magic.

WHAT appears to be a Stone Age love scene between a cave man and his lady is the latest discovery of Stone Age art from caverns of southern France. Yes, the cave man is pursuing the woman. He has no club, but a harpoon point has been shot into her leg.

This scene recorded in art some 20,000 years ago is the discovery of a French archaeologist Count René de St. Périer, reported in the scientific journal *L'Anthropologie*. Exploring the recesses of the Grotto of Isturitz, in southern France, the Count has found two important art objects from the Magdalenian period of Stone Age human history.

One object is a little brown bear sculptured in sandstone, and so cleverly sculptured that it is hailed by the archaeologist as a gem of realistic art. The other object is a long piece of bone, with pictures engraved on both sides. On one is a bison hunt, and on the other a man and woman of the Old Stone Age.

In order to depict the man and woman on the long, narrow piece of bone, the artist placed the woman entirely

above the man. That is, so they appear when the bone object is held vertically. The French archaeologist, who has studied his prized discovery carefully, suggests that the artist meant the figures to be understood as standing side by side.

The woman's head is broken off. She wears a necklace and an anklet.

The man has bobbed hair, and wears a necklace and bangle. His head, shown in profile, has a receding forehead. Both the figures have their hands upraised in a gesture of supplication.

The French archaeologist interprets the harpoon in the woman's leg as a symbol of conquest. The man's attitude, he points out, does not appear hostile.

What the rites of courtship were 20,000 years ago in Europe, is lost knowledge. The Count de St. Périer comments that the engraving of the man and woman is "a document which should be preserved in the hope that some day new discoveries will permit further raising of the veil which hides the mental processes of the Stone Age people."

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ENGINEERING

Engineers to Refrigerate Concrete in Hoover Dam

THE HOOVER DAM, like other modern structures, is to have a mechanical refrigerator. But this will not be for conventional reasons.

The contractors pouring the colossal mass of concrete in Black Canyon must contend with a peculiar habit of Portland cement, of importance only with very large blocks of material. Cement has a considerable amount of latent chemical energy which is released during the setting operation. The silicates and aluminates of lime, of which Portland cement is composed, generate heat when they combine with water. In this respect they act like old-fashioned quicklime, only not so fast and not so hot.

In ordinary jobs, such as sidewalks or concrete walls, the release of heat is

of no consequence, as the mass is small and the structure is readily cooled by contact with earth or atmosphere. In the vast block of Hoover dam the heat will not have a fair chance to escape without special assistance. Without refrigeration the inside portion of the concrete would harden at steaming hot temperatures. The outside would set in a cool state. In due time the hot core would cool, shrink and crack. Studies of the heat given up by cooling concrete have been made in the past, but no structure of large concrete mass is believed to have had refrigeration.

An elaborate and very expensive system is planned, whereby chilled water will circulate through numerous pipes in the freshly poured concrete.

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counted and measured for science. The stimulus for the wink in the case of these subjects was not a co-ed but a hammer coming down against a piece of glass at about the level of the eye.

Not all the winks are the same size, it was found. At the first hammer blow the eye automatically winks rather vigorously, but if this blow is quickly followed by another the size of the second wink is reduced. The longer the interval between the hammer blows, the bigger the winks. This holds for as long as six seconds between blows. This recovery time required by the wink mechanism before it gets back to normal is called by psychologists the refractory period.

The refractory period, it was found, is followed by a period of abnormally large response.

Attempting to keep from winking makes the effect of the refractory period even more noticeable. But when the subjects were told to wink voluntarily each time the hammer fell, there was no sign of a refractory period longer than one second. Practice increased the length of the refractory period for the automatic winks and shortened it for winks on the voluntary level.

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PSYCHOLOGY

Why Children Tell Lies

A Child Does Not Tell Falsehoods Without a Good Reason Which Is Sometimes the Example Set by His Parents

By MARJORIE VAN DE WATER

THE FAMOUS story of how the small George Washington confessed bravely to his misdeed of cutting down the cherry tree because he "could not tell a lie" is in all probability itself a big whopper.

But it has been told and retold to succeeding generations of young Georges, and after all it is true in the sense that it shows the spirit of responsibility which the Father of Our Country did have. It is the spirit which all parents want to see their sons develop.

As to whether the repetition of such a tale, however plain its moral, encourages the modern George to speak the truth, psychologists have strong doubts. Your child can be brought up to be as truthful as history and folk-tale report the great Washington to have been, but mere urging or preaching will not do it.

Some pessimistic parents and teachers have held the belief that honesty cannot be taught at all, that every child is born either honest or dishonest. Some even go so far as to hold with the Psalmist that "all men are liars."

But recent investigations by psychologists indicate that it is not Nature who is responsible for the lies of children. Rather, lying is an outgrowth of a particular situation and the surroundings or background of the child.

In an exhaustive study of the lies of children conducted for the Character Education Inquiry in cooperation with the Institute of Social and Religious Research, Drs. Hugh Hartshorne and Mark A. May of Yale, found that a child will lie in one situation and will tell the truth in another. He will cheat with one teacher and be honest with another.

No one, these scientists say, is either honest or dishonest by "nature." There is no such thing as a born liar. If the child lies it is because he has been placed in a situation where a lie seems to him the only way out, or where he is actually rewarded for deception, or perhaps he has never learned the difference between the truth and untruth. Or

possibly he sees the elders he admires practicing the deception they deplore.

If your child should tell a lie, then, don't worry about his character. But rather look into the situation that called forth the lie and see what can be done to change it.

To aid you in this, Dr. Maurice H. Krout of the Crane Jr. College, Chicago, has made a careful analysis of children's lies and what lies behind them.

An old "gag" says that there are three kinds of lies—white lies, lies, and statistics. Dr. Krout also found three kinds of children's lies, only one type of which consists of deliberate deception.

Child Misinterprets Events

The first class is due to a misunderstanding, or misapprehension, of what happens to the child or what is said to him. It is very difficult, if not quite impossible, for an adult to realize how limited is the experience of the young child. If the two-year-old tells you that his older brother has eaten his ball, it may seem to you that he is lying perhaps for the purpose of getting the older child into trouble. But don't be too hasty. It may be that the baby has seen the boy eating an apple. The apple to him is, like all round objects, a ball.

Dr. Krout also tells the story of a little boy who was taken on his first train trip. On his return, he bragged to his playmates of having been through a country where the people were no bigger than toys. This seemed, of course, like a terrible whopper. But actually the train had passed along a mountain slope where the child could look down on people in the valley far below. To adults on the train, these people were merely ordinary folks seen from a great distance. But to the child with no knowledge of the effect of distance, they were tiny Lilliputians.

Lack of understanding of the meaning of words is another cause of the untruths which fall in this same class. Children are handicapped not only by having an insufficient number and variety of words with which to express themselves but by having only a vague

notion of what many words really mean.

Grammar presents another difficulty. Tense may mean nothing to the small child, yet "I did go to the store" may seem to the misunderstanding adult punishable as a lie, whereas "I will go to the store," or "I meant to go" is the truth and possibly what the child was trying to express.

As an example of the extent to which adult words may be misunderstood by children, Dr. Krout told of what happened when children in an English grammar-school were asked to write out the Lord's prayer. One youngster wrote part of the prayer as "Harold be thy name," and another "Lead us not into Thames station."

The second class of children's lies contains those due to a confusion of the fancied with the real. The child may remember and relate his dreams as though they were actual events. This type of untruth, Dr. Krout calls a prevarication.

Such prevarication is innocent on the part of the child, and may be entirely unconscious. Sometimes, however, it may look suspicious to the elders especially when the child adds to true facts bits of his wishes or day dreams.

A little three-year-old girl told a story of having been walking with her father the day before. She said a dog attacked her father, but that she had hit the dog with a stick and saved her father. Actually they had taken the walk and met the dog, but the rest of the story was made up. What Dr. Krout believes happened was that when they met the dog, the little girl imagined or wished herself taking a heroic part in an adventure.

Fancy Recalled as Fact

The next day the wish and the reality had become one event to the child and were remembered together as an actual event.

There is an inconsistency in the parent who punishes a child for such prevarication and yet encourages her to play store with checkers for money, or to feed imaginary tea to her dolls, or to ride "horseyback" on a broom.

Children must be taught patiently the difference between wishes and fancies

and "cold facts." But such confusions are not immoral, they are the natural accompaniments of immaturity and childish ignorance.

The third type of children's lies includes only conscious substitutions of the untrue for the true. These are called by Dr. Krout deceptions.

Why do children resort to deliberate deception?

The first reason is fear. If the child early discovers that just one little lie will save him from the wrath of a stern parent, who can blame him if he takes this same means to avert the storm on another occasion?

If the trainer wants to teach a puppy to do a trick, all he has to do is to present a piece of meat each time the trick is done correctly and scold or slap for each failure. The puppy knows nothing of whether the trick he learns is right or wrong.

In this respect, the young human is very much like the young dog. If the child is punished when he fails to lie and rewarded when the lie is convincing, he will, if bright, soon be learning bigger and better lies.

Another reason for deception is to overcome opposition or to gain an end without the friction so often caused by requests or demands.

The desire for attention is a powerful reason for telling the amazing whoppers that some children delight in. An anecdote which the great scientist Charles Darwin told of his own boyhood shows that he was one of these boys. In his story, rather the reverse of the cherry tree story, he said:

"I once gathered much valuable fruit from my father's trees and hid it in the shrubbery, and then ran in breathless haste, to spread the news that I had discovered a hoard of stolen fruit."

It is very likely that the same motive which caused him in his childhood to tell stories of this sort was the force which later directed his scientific labors.

A similar reason for deception is the desire to save face. The preservation of self-respect and the respect of associates is almost as necessary to the human, young and old, as is the preservation of life itself.

All children have a more or less powerful tendency to brag of what "My Daddy" has or does. If the youngster is so unfortunate as to be disappointed in his parents, the natural compensation is to amaze his associates with totally fictitious tales.

The child will also lie to avoid that



NO TIME FOR FIBBING

Modern educators plan school work so that there is little opportunity or need for lying and cheating, but lots of useful scope for the child's imagination

horror of youth—ridicule. Dr. Krout tells of a little girl who went to the store for a loaf of bread but when she got there had forgotten what she went for. Rather than confess to this and suffer the ridicule of the family she lied and said that the store was "sold out."

The part of the adult in the child's lie is nearly always greater than he realizes. It is for this reason that the adult can train the child so that he will not deceive.

Here are a few practical suggestions for the aid of the parent or teacher based on the findings of the Character Education Inquiry.

Preaching Fails

In the first place give up urging the child to be honest and tell the truth. Give up, too, general discussions of ideals. Not that children should not learn ideals and standards of conduct, but preaching is not the way to teach young children.

What the youngster should be told is just what is honest and what is dishonest in terms of definite situations. This is to say that the modern child trainer would not say, "Johnny, you mustn't tell stories to your teacher," but rather "Johnny, you shouldn't tell me that you lost your arithmetic paper when you really never worked the problem, because that deceives me. If I had known that you had trouble with your problems, I could have helped you. As it was I thought you had been careless."

The need for deceit should be eliminated. Owing up should not result in discouraging punishments. Attention should be given the child without any need for tall tales or false bragging.

But most important of all, a most meticulous example of honesty should

be set the child. For after all the question of what is a lie and what is not is hard enough for the child to learn without complicating the matter by requiring him to distinguish between a polite, or white lie, and a "bad" one.

The following questions form a "psychological test" which may aid in telling you whether your boy is being brought up to emulate the George of the cherry tree:

1. Is the boy ever instructed to tell Mrs. Brown that the adult hiding in the kitchen is "not at home"?
2. Does he ever hear big sister tell the old boy friend that she has a headache and later see her go out with the new one?
3. Does he ever hear the grownups laugh over the way Billy fooled the traffic cop to avoid getting a ticket?
4. Does anyone ever make promises to him which are not kept?
5. Does anyone threaten him with extreme punishments such as cutting off ears or tongue or even killing, which of course there is no intention of keeping?
6. Has he been told extravagant tales of a "bogie" man or "bears that will come out of the woods to eat you"?
7. Has he ever seen anyone wear or use an article and then return it to the store as new?
8. Has he ever had the unpleasant shock of tasting bitter medicine after being told that it would taste like lemonade?
9. Does he hear his father tell of the size of "that big one that got away"?
10. Has he ever had the heartbreaking experience of waking in the night to find that his parents have gone out although they told him they would not leave him?

PHYSICS

**American and German
Receive Franklin Medals**

AN AMERICAN engineer and a German physicist share one of the highest awards given by an American institution. Dr. Ambrose Swasey, of Cleveland, and Dr. Philipp Lenard, of Heidelberg, were given Franklin Medals by the Franklin Institute at a special meeting in Philadelphia.

In collaboration with his partner, the late Worcester R. Warner, Dr. Swasey organized the Warner and Swasey Company, which has made many of the world's largest astronomical telescopes, in addition to machine tools. He also founded and endowed the Engineering Foundation and invented a range finder that was adopted by the United States Government.

Dr. Lenard was the first physicist to obtain cathode rays, consisting of rapidly moving electrons, outside the tube in which they were generated, and also discovered the "photoelectric effect" of ultraviolet light. At present he holds the rank of "Geheimrat" and is director of the Radiological Institute of the University of Heidelberg. Because of his feeble health, he did not come to Philadelphia in person.

Thirteen other awards were given at the same time by the Institute which was founded in 1824 as a memorial to Benjamin Franklin. Three of these were Cresson Medals, the Institute's oldest award, having been established in 1848. These went to Dr. Percy W. Bridgman of Harvard University; to Dr. Charles Le G. Fortescue of the Westinghouse Electric and Manufacturing Co.; and to Dr. John B. Whitehead of the Johns Hopkins University.

Science News Letter, May 28, 1932

ARCHAEOLOGY

**Mystery Mound in Cuba
Hints at Cannibalism**

A MYSTERY STORY dating back to the days before Columbus sailed to America has been uncovered in Cuba by H. W. Krieger of the U. S. National Museum. Mr. Krieger has just returned from exploring Indian mounds along the coast of Cuba.

Out of the thirty Indian mounds discovered by Mr. Fox of Florida, Cuba, and excavated by Mr. Krieger, there was one mound on the southern coast different from the rest in a mysterious, sinister way. All of the mounds investi-

gated were village trash heaps, containing animal and bird and turtle bones, also shells and other refuse. But this one mound had mixed in with mammal bones, shells, and earth a quantity of human bones broken up.

Indian cannibalism? Possibly, Mr. Krieger answers.

Some of the bones were split lengthwise, as cannibals broke bones to eat the marrow inside. But just to make the solution of the prehistoric mystery case harder, some of the human bones were not split, but broken into short lengths.

It is known that roving Carib Indians had the custom of eating human flesh. Bands of piratical Caribs from Dominica and neighboring islands made life miserable for peaceable Arawak Indian farmers in the islands of Porto Rico, Haiti, and Cuba.

The Cuban mound which revealed such gruesome remains may be some of the Caribs' work. This can be verified in part by study of stone implements on the surface of the mound.

The mystery mound cannot be explained, however, by saying that a Carib band descended on a seaside village and held one terrible feast of victory. Mr. Krieger found dismembered human bones mixed in the refuse from top to bottom of the mound. The culinary practice that the human bones represent, whatever it was, lasted for a considerable time, as the mound is a city block in length and approximately ten feet high near its center.

Science News Letter, May 28, 1932

MEDICINE

**Hodgkin's Disease Treated
Successfully with X-Rays**

SUCCESS in X-ray treatment of a few cases of the usually fatal Hodgkin's disease was reported before the meeting of the American Medical Association by Dr. A. U. Desjardins of the Mayo Clinic, Rochester, Minn. Surgery was entirely ineffective in treating this disease, which is characterized by nodes or tumors in the lymph glands of the body. Sometimes these tumors interfere with breathing and sometimes they stop the circulation of blood to the bone, resulting in destruction of the bone with much attendant pain. The disease is much more common than formerly supposed, Dr. Desjardins said. Its cause is obscure, but heredity may play a part, and also prolonged infection of any kind.

Science News Letter, May 28, 1932

IN SCIENCE

ASTRONOMY

**New Minor Planet Sighted
From Argentine Observatory**

AN ASTEROID or minor planet was discovered on May 10 at the La Plata Observatory, Argentine, the Harvard College Observatory has been informed telegraphically by Prof. J. F. Hartmann, director. The new asteroid can not be seen by American astronomers as it is in the southern skies, in the constellation of the Hydra, right ascension 14 hours and south declination 22 degrees.

Science News Letter, May 28, 1932

CHEMISTRY

**Gasoline Extinguishes Fire
In Visioned Ammonia World**

A WORLD in which gasoline would be used to extinguish fires was described here before the Chicago section of the American Chemical Society by Dr. Edward Curtis Franklin, professor emeritus of organic chemistry in Stanford University. Dr. Franklin was awarded the Willard Gibbs medal for "eminent work in and contribution to pure or applied chemistry."

As a pioneer in the chemistry of ammonia, he opened up a new field and by the study of ammonia and the classification of its compounds made them available to industry. This work began 35 years ago at the University of Kansas.

In order to emphasize the fact that ammonia, like common water, forms many different kinds of compounds, Dr. Curtis imagined the water of the world replaced by ammonia.

"Liquid ammonia vapor," he said, "in an atmosphere of nitrogen is transported over the land areas of the earth and precipitated from ammonia clouds as liquid ammonia rain in the tropics and temperate zones, and as ammonia snow on mountain tops and in the arctic regions. Plants and animals flourish in the ammonia world."

In such a world where ammonia takes the place of water, cocktails would be liquid ammonia solutions of either ethylamine or diethylamine.

Science News Letter, May 28, 1932

CE FIELDS

DESIGN

Shape of Movie Screen Should Be Improved

THE SHAPE of the motion pictures on the screen has not been so pleasant to look at since the coming of the talkies cut a slice off the side of the picture, Loyd A. Jones of the Kodak Research Laboratories has found during a study of what would be the best dimensions for the projected rectangle.

Before the talkies the standard motion picture projection had breadth and height in proportions four to three. The narrowing of the available picture area in order to provide space for the photographic sound record has reduced the breadth to 115 per cent. of the height. Pictorial composition and practical usefulness are both injured by the unsatisfactory proportions of this area, experts are agreed.

Statistical studies of the proportions used by famous artists in their paintings have now shown that certain ratios of breadth to height are favored more than others. In particular it was shown by a study of the works of Rubens that, as the number of human figures in the composition increases, the breadth of the picture should become relatively greater.

The four to three ratio is an example of what is called "static" symmetry as contrasted with the "dynamic" symmetry widely used in the famous "whirling square" of classical Greek art. In deciding the best dimensions for the moving pictures on the screen, Mr. Jones found many other factors than those applied to still pictorial composition must, however, be taken into consideration.

Science News Letter, May 28, 1932

ARCHAEOLOGY-PHOTOGRAPHY

Flying Archaeologist Makes Unique Picture Record

See Front Cover

FLYING over the far-flung ruins of civilizations which his own scientific institution is busily exploring from the ground, Charles Breasted, of the Oriental Institute of the University of Chicago, has obtained 12,000 feet of unique

motion picture film, showing the work of "the largest archaeological research organization in the world."

Mr. Breasted, who has just returned from his magic carpet flight over the broken magnificence of old Babylonia, Persia, Egypt, and other Near Eastern countries, told of his experiences recently in a radio talk under the auspices of Science Service, over the Columbia Broadcasting System.

"From Rutbah we flew on to Baghdad through a fiendish dust storm in which visibility was nil and progress was possible only by constantly establishing our position through radio," Mr. Breasted said. "Capt. Olley, who had never before flown this route, literally bisected the Baghdad airdrome, and brought us safely down."

"After a sleepless, choking night, the dust settled as suddenly as it arose, and we were able to record in movies the work of our Iraq Expedition, stationed about 50 miles out in the barren plain northeast of Baghdad, where we are excavating two large ancient Babylonian cities, the latest 'layers' of which date from 2500 B. C."

Pushing on toward Persia, the fliers met another dust storm, and had to climb to 12,000 feet to find clear sunlight. At Shiraz, 5,000 feet above sea level, they left their plane for an automobile detour to Persepolis, which Mr. Breasted describes as "the most magnificent site of the ancient world with the single exception of the Acropolis at Athens."

"Persepolis, the capital of the Persian Empire built by Darius the Great about 500 B. C. and destroyed by Alexander the Great in 331 B. C., stands at the base of a black mountain on a great terrace built of gigantic stones taller than a man, and surveys a vast plain encircled by mountains," said Mr. Breasted.

"Here ruled the emperors of ancient Persia, and here today the Oriental Institutes is excavating and restoring this place of transient grandeur. Our expedition headquarters is the reconstructed harem of Darius. Needless to say, our cinema record of Persepolis—the first one ever made on standard size film—is of remarkable interest."

The tombs of Xerxes and Artaxerxes, near Persepolis, were visited by the fliers, and the impressive rock sepulchres were photographed. (See front cover).

The motion picture record obtained in the air survey will be used in a talking picture, in which the voice of Dr. J. H. Breasted, director of the Institute, will describe the scenes.

Science News Letter, May 28, 1932

MEDICINE

Little Ultraviolet Needed To Cure or Prevent Rickets

THE AMOUNT of ultraviolet radiation needed to cure or prevent rickets is surprisingly small, Dr. Arthur Knudson of Union University, Albany Medical College, found in studies with rats which he has reported to the Society for Experimental Biology and Medicine. Assuming that a similar relationship holds for human beings as for the animals he studied, Dr. Knudson says it appears that much smaller amounts of ultraviolet radiation than are generally considered necessary will be effective.

The amount needed to cure rickets is directly proportional to the area of skin exposed, he found in his studies. Thus exposure of one-fourth of a square inch of skin for twenty minutes daily healed rickets completely in three weeks in the rats. The same result was obtained by exposing one square inch for five minutes, two square inches for two and one-half minutes or one-eighth square inch for forty minutes daily.

Science News Letter, May 28, 1932

EDUCATION

Three R's Taught In Tuberculosis Hospital

TUBERCULOSIS patients in the Manitoba Sanatorium at Ninette near Winnipeg, Canada, are able to study subjects ranging from the three R's to French, history and university courses, Dr. David A. Stewart, superintendent of the sanatorium, reported to the American Occupational Therapy Association. One official teacher gives all the instruction and guidance to older, younger, ambulant and bed patients alike.

Patients found to be illiterate are taught to read and write, non-English patients are taught English, technical correspondence courses are supplied at low cost through the provincial Department of Education, and "brushing up" courses are given in such subjects as grammar, spelling, bookkeeping and arithmetic.

"Of all occupations for sick people, especially sick people in bed, or barely ambulant, or even on exercise, one of the very best in our experience is study," Dr. Stewart declared. Besides helping to pass the time in the hospital and cheering the patient, study might prove very useful in improving his vocational ability so that he would be better fitted to make a living when he left the hospital.

Science News Letter, May 28, 1932

PHYSICS

From Gas to Liquid

"A Classic of Science"

**Andrews Found No Sharp Division Between Gas and Liquid;
The Liquid-Solid Critical State Has Since Been Studied**

ON THE CONTINUITY OF THE GASEOUS AND LIQUID STATES OF MATTER. By Thomas Andrews. In *Philosophical Transactions of the Royal Society*. Vol. 159. London: MDCCCLXX (1870).

IN 1861 a brief notice appeared of some of my early experiments in this direction. Oxygen, hydrogen, nitrogen, carbonic oxide, and nitric oxide were submitted to greater pressures than had previously been attained in glass tubes, and while under these pressures they were exposed to the cold of the carbonic acid and ether-bath. None of the gases exhibited any appearance of liquefaction, although reduced to less than 1/500 of their ordinary volume by the combined action of cold and pressure. In the third edition of Miller's "Chemical Physics", published in 1863, a short account, derived from a private letter addressed by me to Dr. Miller, appeared of some new results I had obtained, under certain fixed conditions of pressure and temperature, with carbonic acid. As these results constitute the foundation of the present investigation and have never been published in a separate form, I may perhaps be permitted to make the following extract from my original communication to Dr. Miller. "On partially liquefying carbonic acid by pressure alone, and gradually raising at the same time the temperature to 88° Fahr., the surface of demarcation between the liquid and gas became fainter, lost its curvature, and at last disappeared. The space was then occupied by a homogeneous fluid, which exhibited, when the pressure was suddenly diminished or the temperature slightly lowered, a peculiar appearance of moving or flickering striae throughout its entire mass. At temperatures above 88° no apparent liquefaction of carbonic acid, or separation into two distinct forms of matter, could be effected, even

when a pressure of 300 or 400 atmospheres was applied. Nitrous oxide gave analogous results. . . .

A New Condition of Matter?

What is the condition of carbonic acid when it passes, at temperatures above 31°, from the gaseous state down to the volume of the liquid, without giving evidence at any part of the process of liquefaction having occurred? Does it continue in the gaseous state, or does it liquefy, or have we to deal with a new condition of matter? If the experiment were made at 100°, or at a higher temperature, when all indications of a fall had disappeared, the probable answer which would be given to this question is that the gas preserves its gaseous condition during the compression; and few would hesitate to declare this statement to be true, if the pressure, as in Natterer's experiments, were applied to such gases as hydrogen or nitrogen. On the other hand, when the experiment is made with carbonic acid at temperatures a little above 31°, the great fall which occurs at one period of the process would lead to the conjecture that liquefaction had actually taken place, although optical tests carefully applied failed at any time to discover the presence of a liquid in contact with a gas. But against this view it may be urged with great force, that the fact of additional pressure being always required for a further diminution of volume, is opposed to the known laws which hold in the change of bodies from the gaseous to the liquid state. Besides, the higher the temperature at which the gas is compressed, the less the fall becomes, and at last it disappears.

The answer to the foregoing question, according to what appears to me to be the true interpretation of the experiment already described, is to be found in the close and intimate relations which subsist between the gaseous

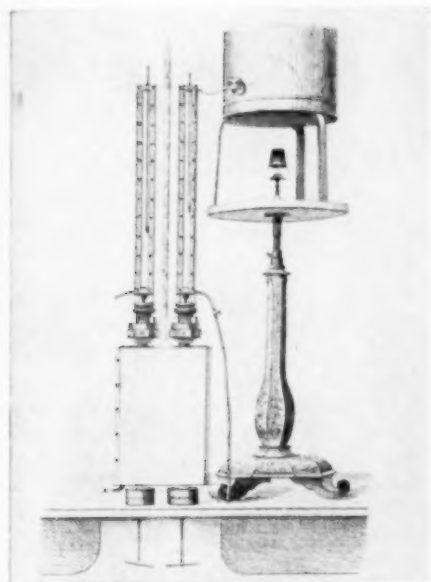
and liquid states of matter. The ordinary gaseous and ordinary liquid states are, in short, only widely separated forms of the same condition of matter, and may be made to pass into one another by a series of gradations so gentle that the passage shall nowhere present any interruption or breach of continuity. From carbonic acid as a perfect gas to carbonic acid as a perfect liquid, the transition we have seen may be accompanied by a continuous process, and the gas and liquid are only distant stages of a long series of continuous physical changes. Under certain conditions of temperature and pressure, carbonic acid finds itself, it is true, in what may be described as a state of instability, and suddenly passes, with the evolution of heat, and without the application of additional pressure or change of temperature, to the volume, which by the continuous process can only be reached through a long and circuitous route. In the abrupt change which here occurs, a marked difference is exhibited, while the process is going on, in the optical and other physical properties of the carbonic acid which has collapsed into the smaller volume, and of the carbonic acid not yet altered. There is no difficulty here, therefore, in distinguishing between the liquid and the gas. But in other cases the distinction cannot be made; and under many of the conditions I have described it would be vain to attempt to assign carbonic acid to the liquid rather than the gaseous state. Carbonic acid, at the temperature of 35°.5, and under a pressure of 108 atmospheres, is reduced to 1/430 of the volume it occupied under a pressure of one atmosphere; but if any one ask whether it is now in the gaseous or

What is a Plant's Favorite Color?

JULIUS VON SACHS

born a century ago, explains which light waves plants use in building up carbon dioxide into complex starch

IN THE NEXT CLASSIC OF SCIENCE



CRITICAL POINT APPARATUS

With these capillary tubes Andrews found the point where gases are liquids and liquids are gases.

liquid state, the question does not, I believe, admit of a positive reply. Carbonic acid at $35^{\circ}.5$, and under 108 atmospheres of pressure, stands nearly midway between the gas and the liquid; and we have no valid grounds for assigning it to the one form of matter any more than to the other. The same observation would apply with even greater force to the state in which carbonic acid exists at higher temperatures and under greater pressures than those just mentioned. In the original experiment of Cagniard de la Tour, that distinguished physicist inferred that the liquid had disappeared, and had changed into a gas. A slight modification of the conditions of his experiment would have led him to the opposite conclusion, that what had been before a gas was changed into a liquid. These conditions are, in short, the intermediate states which matter assumes in passing, without sudden change of volume, or abrupt evolution of heat, from the ordinary liquid to the ordinary gaseous state.

In the foregoing observations I have avoided all reference to the molecular forces brought into play in these experiments. The resistance of liquids and gases to external pressure tending to produce a diminution of volume, proves the existence of an internal force of an expansive or resisting character. On the other hand, the sudden diminution of volume, without the application of additional pressure externally, which occurs when a gas is compressed, at any

temperature below the critical point, to the volume at which liquefaction begins, can scarcely be explained without assuming that a molecular force of great attractive power comes here into operation, and overcomes the resistance to diminution of volume, which commonly requires the application of external force. When the passage from the gaseous to the liquid state is effected by the continuous process described in the foregoing pages, these molecular forces are so modified as to be unable at any stage of the process to overcome alone the resistance of the fluid to change of volume.

Properties are General

The properties described in this communication, as exhibited by carbonic acid, are not peculiar to it, but are generally true of all bodies which can be obtained as gases and liquids. Nitrous oxide, hydrochloric acid, ammonia, sulphuric ether, and sulphuret of carbon, all exhibited, at fixed pressures and temperatures, critical points, and rapid changes of volume with flickering movements when the temperature or pressure was changed in the neighborhood of those points. The critical points of some of these bodies were above 100° ; and in order to make the observations, it was necessary to bend the capillary tube before the commencement of the experiment, and to heat it in a bath of paraffin or oil of vitriol.

The distinction between a gas and vapour has hitherto been founded on principles which are altogether arbitrary. Ether in the state of gas is called a vapour, while sulphurous acid in the same state is called a gas; yet they are both vapours, the one derived from a liquid boiling at 35° , the other from a liquid boiling at -10° . The distinction is thus determined by the trivial condition of the boiling point of the liquid, under the ordinary pressure of the atmosphere, being higher or lower than the ordinary temperature of the atmosphere. Such a distinction may have some advantages for practical reference, but it has no scientific value. The critical point of temperature affords a criterion for distinguishing a vapour from a gas, if it be considered important to maintain the distinction at all. Many of the properties of vapours depend on the gas and liquid being present in contact with one another; and this, we have seen, can only occur at temperatures below the critical point. We may accordingly define a vapour to be a gas at any temperature under its critical point. According to this definition, a vapour may,

by pressure alone, be changed into a liquid, and may therefore exist in presence of its own liquid; while a gas cannot be liquefied by pressure—that is, so changed by pressure as to become a visible liquid distinguished by a surface of demarcation from the gas. If this definition be accepted, carbonic acid will be a vapour below 31° , a gas above that temperature; ether a vapour below 200° , a gas above that temperature.

We have seen that the gaseous and liquid states are only distant stages of the same condition of matter, and are capable of passing into one another by a process of continuous change. A problem of far greater difficulty yet remains to be solved, the possible continuity of the liquid and solid states of matter. The fine discovery made some years ago by James Thomson, of the influence of pressure on the temperature at which liquefaction occurs, and verified experimentally by Sir W. Thomson, points, as it appears to me, to the direction this inquiry must take; and in the case at least of those bodies which expand in liquefying, and whose melting-points are raised by pressure, the transition may possibly be effected. But this must be a subject for future investigation; and for the present I will not venture to go beyond the conclusion I have already drawn from direct experiment, that the gaseous and liquid forms of matter may be transformed into one another by a series of continuous and unbroken changes.

Science News Letter, May 28, 1932

ARCHAEOLOGY

Explorer of Calakmul Finds Second Ruined Maya City

A SECOND ruined Maya city, much smaller than Calakmul, has been reported by C. L. Lundell, Dallas, Texas, botanist, upon his return from Yucatan bringing details of his finds.

The second ruined city reported by Mr. Lundell is called Nohoxna and it is located fifteen miles from the Guatemalan border in the Mexican state of Petan about half way between Calakmul, the other city he reported, and Uaxactun, a ruin where Carnegie Institution archaeologists have been working. It contains nine monuments.

Mr. Lundell stopped off in New Orleans on his way home, and conferred with Dr. Frans Blom of Tulane University. The finding of Calakmul was declared by Dr. Blom to be of the greatest importance. He predicted that the

reading of hieroglyphs found on the monuments may fill gaps in present knowledge.

The finding of Calakmul was announced on April 30 by the Carnegie Institution of Washington which sent a party to confirm Mr. Lundell's report. Dr. Sylvanus G. Morley, who visited the ruins, pronounced them the largest of Maya cities and important in understanding the early history of the Maya Indians.

Reports from Mexico City credit the discovery of Calakmul to a Mexican chicle gatherer, Francisco Morales.

Science News Letter, May 28, 1932

ICHTHYOLOGY

New Game Fish Given Home In Glacier National Park

TWO NEW species of game fish have been added to the piscatorial family of Glacier National Park. They are the landlocked salmon and the Pyramid Lake (Nevada) cutthroat, both noted for their hard fighting qualities and the fact that they appear tireless in their violent struggles to escape the hook.

Thirteen thousand of the salmon and 36,000 of the new cutthroat species were introduced, all in St. Mary's Lake, which is visited by most tourists in the park. If these new varieties thrive, larger numbers will be planted in the park in the future.

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Twenty-five breeding colonies of the white pelican have been located in the United States and Canada.

ANTHROPOLOGY

"Gorilla" Picture of Gangster Based on Facts of Science

POPULAR conception of the "natural born" killer, that has recently given him the nickname "gorilla," has a solid basis of scientifically determined fact.

This is indicated by researches of Prof. Earnest A. Hooton, Harvard University anthropologist, who made a preliminary report before the meeting of the American Philosophical Society. His address was also broadcast over the network of the Columbia Broadcasting System, under the auspices of Science Service.

Prof. Hooton and his associates have measured and examined thousands of criminals in a number of penitentiaries in this country, in an endeavor to learn whether there are any consistent departures from given racial norms in criminals convicted of a given type of offense.

Specifications for Murderers

The composite picture yielded by the examination of the group of native American first-degree murderers is strikingly suggestive of the typical "hard guy" of fiction and the movies. Following are Prof. Hooton's specifications:

"First degree murderers diverge significantly from total criminal population in that they are older, heavier, taller, bigger-chested, with greater head

circumferences, narrower foreheads, longer and relatively narrower noses, broader jaws, broader ears, relatively narrower shoulders, relatively shorter trunks, relatively longer heads, less head hair, more body hair, straighter hair, more pronounced forehead slope, more convex noses, fewer and poorer teeth, both flatter and more projecting ears, less facial asymmetry, etc. Some of these differences, but by no means all of them, are due to the higher average age of this class of prisoner."

Heredity Largely Responsible

Most other criminal groups, however, were found to be physically inferior to their fellows of the same race without the walls; and this held for Negroes and Negro-White crosses as well as for the purely white-skinned folk.

Prof. Hooton paid his wittily caustic disrespects to criminologists who adhere to the doctrine that environment and training make the criminal, and that the evildoer's heredity has no connection with his evil deeds. While he regards Caesar Lombroso's early attempt to define a "criminal type" as unscientific and unsuccessful, he does believe that Lombroso made a bad start in the right direction, and that significant physical departures from the normal can be found in various types of criminal, no less than his psychological departures from the normal.

Science News Letter, May 28, 1932

MEDICINE

Fascist Salute Seen As TB Preventive In Italy

THE ANTI-TUBERCULOSIS crusaders in Italy have approved the Fascist salute, with the arm lifted up over the head, as a hygienic substitute for the handshake or the kiss, either of which may be the means of spreading tuberculous infection.

The Italian government has set aside one day of every year, generally an Easter day, for a sort of tag day when the anti-tuberculosis campaigners may gather money for their cause in the streets of all Italian cities.

Science News Letter, May 28, 1932

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June Bugs

NEXT Wednesday is the first of June, and therefore all the June bugs should appear promptly Tuesday midnight. In most places the June bugs do not know proper etiquette, and have been on hand for some time already. June beetles they should by rights be called, rather than June bugs, for they are of course beetles, and close kin to the most ancient and royal of their tribe, the sacred scarab of the Egyptians.

The Egyptian scarab was undoubtedly a better-behaved insect than the modern June bug, or he would never have had monuments erected in his honor, or slept in the tombs of Pharaohs. The June bug, for all his good-natured, blundering ways as an adult, is as a youth a most unholy terror. The clumsy, sluggish, thick-bodied white grubs or grubworms that you find when you are working your garden are the children of the June bug. Left in the ground as eggs, they spend a long and peaceful grubhood in the soil, migrating when it pleases them, loafing when they like. All very nice for the grubs, no doubt; but they feed mainly on the roots of grass, which is not nearly so nice for the owner of the lawn or golf course. And if they are numerous enough in a potato field they will ruin the crop with apparently neither remorse nor indigestion.

After a time as grubs they pupate, or pass into a chrysalis condition of almost death-like dormancy, during which the almost magical change from the long, soft, wingless white grub to the round, hard, winged brown beetle takes place. Then they emerge as full-fledged June bugs, ready to begin the cycle over again.

Science News Letter, May 28, 1952

ARCHAEOLOGY

Ruins of Early Church Adorned With Bible Scenes

Astonishing Discovery of Art Treasures Represents Both Old and New Testament

PAINTINGS of Christ healing the sick, Adam and Eve, the resurrection, and other Bible themes from the brush of a second century artist are a discovery of major interest by archaeologists, announced by Prof. Michael I. Rostovtzeff, of Yale University.

The paintings, of the greatest importance to Bible scholars, were found in ruins of a Christian church in Dura, Syria, where the expedition from Yale and the French Academy of Inscriptions has been excavating. Prof. Clark Hopkins of Yale, field director of the expedition, was astonished to find the Christian church, and more astonished at its art treasures.

The church had been buried under a strong mud-brick wall which the Romans built in haste when they were strengthening the frontier-fortress of Dura against the Persians.

Archaeologists who uncovered the ruins found that walls and the apse of the little early Christian church were painted from top to bottom with scenes from the Old and New Testament, Prof. Rostovtzeff announced.

"Inside the concha of the apse-baptismal font, stands the Good Shepherd with His twelve sheep, and beneath this scene Adam and Eve near the tree," he stated.

David Triumphant

"On the entrance door the worshipper saw young David raising triumphantly his sword over the enormous prostrate body of Goliath, the two names being written near the corresponding figures.

"Finally, to the right of the niche or apse of the church, one sees Christ healing the sick man who is represented first in his bed and afterwards running away with his bed on his shoulders, and near it, a very striking composition showing the miracle of the lake. This shows the disciples of Christ in their boat looking in amazement on what is happening on the surface of the water, that is Christ slowly moving to the left and stretching His right hand towards

Peter who is sinking and imploring for help.

"The most interesting and chief scene of the painted decoration, however, shows the story of the resurrection: the majestic front of the grave with two shining stars above it and the procession of the myrrhophores, the three Marys with their companions moving slowly and solemnly towards the grave with lighted torches and bowls full of myrrh in their hands. It is a beautiful composition painted with a gorgeous display of colors."

The paintings throw new light on the Gospels as they existed in very early Christian history, Prof. Rostovtzeff pointed out.

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The famous Sudbury field in Ontario, a tiny area of the globe, has yielded half a billion dollars in nickel, platinum, and other metals.

Italy pays as much attention to scientific silkworm breeding as some nations do to horse breeding, says a writer in a geographic journal.



The Science Service radio address next week will be on the subject,

WHAT DO YOU WEIGH TODAY?

R. W. Smith

Chief of the section of weights and measures laws and administration of the U. S. Bureau of Standards, will speak

FRIDAY, JUNE 3

at 2:45 P. M., Eastern Standard Time

Over Stations of

The Columbia Broadcasting System

ASTRONOMY

Calculation Nearly Gives Earth a Second Moon

THE MOON nearly lost its distinction of being earth's only satellite.

From the Royal Belgian Observatory Prof. E. Delporte sighted a new faint point of light in the heavens. This occurred the middle of March. Cables and telegrams carried the news to observatories throughout the world and the race was on to determine the character and future of the heavenly visitor. "Probably a new comet" was what the astronomers thought.

As their telescopes followed its movement in the sky, as their tedious computations searched out its orbit, it was discovered that there was a chance that it might be a new and second satellite of the earth, diminutive sister of the moon. At Harvard College Observatory one night when the quest was keenest, opinions on whether the Delporte object was comet, satellite or planet changed with the hours.

For days the uncertainty continued. The "Delporte object" grew in fame and diminished in brightness as it moved. In six days it speeded a twenty-fourth of the circumference of the heavens along a great circle, a performance unusual to a comet or one of those tiny planets that are known as asteroids. This strengthened the idea that it was another moon of the earth.

But the University of California's eminent authority on planets and comets,

Prof. A. O. Leuschner, and his associate, Dr. E. C. Bower, devised a new kind of orbit determination that can be used on visitors that come close to the earth. This showed the Delporte object to be a tiny planet moving in a cometary orbit. It can justly be called either planet or comet.

Although not the earth's second satellite, the Delporte object is destined nevertheless for fame. It comes even closer to earth than the minor planet Eros, heretofore our nearest planetary neighbor. It is about ten million miles away. As luck would have it, the Reinmuth object, discovered April 27, turns out to be even closer to the earth, only eight million miles away. (SNL, May 21, '32, p. 330). Astronomers will seize upon these two objects as good chances to determine more accurately the distance of the sun from the earth.

Meanwhile their hopes have been whetted that there will be discovered some day a second moon of the earth.

Science News Letter, May 28, 1932

BOTANY

Poison Ivy Worst When Leaves Are Young

POISON IVY is at its worst when its leaves are young and just expanding. At least it is in the early spring that

the most cases of ivy poisoning occur. This of course may be partly due to the fact that people do not recognize the plant and therefore fail to avoid it as they do later, said James B. McNair of the Field Museum of Natural History, in a radio talk given under the auspices of Science Service. The talk went on the air over the network of the Columbia Broadcasting System.

Mr. McNair denied the old notion that poison ivy is most venomous when it is in bloom, and also the belief that its pollen is poisonous. The pollen of poison ivy, he said, has none of the poisonous material in it, and even if it had it could not do any mischief at a distance, for it is a sticky pollen of the type borne by insects, not the dry type adapted for wind transportation.

Special Tubes for Poison

The real poison of poison ivy, Mr. McNair said, is a kind of resin, that travels through the stem and out into the leaves in a series of special tubes, and not in the general sap stream. Some of this resinous stuff has to reach the skin before poisoning can occur. It cannot travel through the air in any way; although persons who have not touched poison ivy can still be poisoned by contact with garden tools or other articles that have brushed through its leaves.

People vary greatly in their susceptibility to ivy poisoning, Mr. McNair stated, and some fortunates are apparently quite immune to any ordinary contact. Many remedies have been proposed, but the one he recommended is a solution of an iron salt. Of this remedy he said:

Iron Chloride Recommended

"The best and most effective preventive proves to be iron chloride, which completely neutralizes the poison, though it is effective as a remedy only if used in the very early stages. The use of iron chloride to the extent of five per cent. in a half and half mixture of alcohol and water is recommended. If the hands and face are bathed freely in this solution either before or immediately after one goes into a region known to contain poison ivy or its kindred plants, no ill effects need be expected. The remedy is cheap, is easily obtainable at any drug store, is non-poisonous and safe."

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There is only a small amount of helium in the air we breathe close to earth, but 62 miles up the air is 67 per cent. helium.

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• First Glances at New Books

Botany

PLANTS: WHAT THEY ARE AND WHAT THEY DO—A. C. Seward—*Macmillan*, 141 p., \$1.50. Herein Prof. Seward again demonstrates the ability of the well-rounded English man of science to present a scientific subject in brief compass so that the layman can understand it, and what is even more important, so that the layman will be interested in it and eager to read about it. This little book is a worthy continuation of a tradition that runs back to Stephen Hales.

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Physics

THE PHYSICAL SIGNIFICANCE OF THE QUANTUM THEORY—F. A. Lindemann—*Oxford*, 148 p., \$2.50. Physicists and those attempting to follow the new physics will welcome this book, the intention of which is "epistemological rather than critical. No shadow of doubt is cast upon the validity of the standard equations and formulae. Its purpose is rather to clear up the mystery surrounding their origin and to expose the true physical significance of the Quantum Theory. It represents an endeavor to prove the thesis maintained since 1924, that the quantum difficulties are the expression of the fact that space and time are as mental concepts incomplete, that they are inadequate indefinables in which to describe reality."

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Ichthyology

JAPANESE AQUATIC PLANTS AND ANIMALS—Fisheries Society of Japan—*Stanford University Press*. 2 vols., \$50. Volume I, on fishes, is now out; volume II, plants, is announced for the near future. The illustrations are such as one might expect from the best of Japanese scientific artists; the English text descriptions are concise and exact.

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Archaeology—Ethnology

SELECTED MANUSCRIPTS OF GENERAL JOHN S. CLARK RELATING TO THE ABORIGINAL HISTORY OF THE SUSQUEHANNA—Ed. by Louise Welles Murray—*Soc. for Pennsylvania Archaeology*, 150 p., cloth \$2.50, paper \$2. The first volume in a series on aboriginal Pennsylvania to be issued under auspices of the Society for Pennsylvania Archaeology. General Clark, who died in 1912, made a prolonged study of the Indians of Pennsylvania, acquiring rare manu-

scripts and maps, having other originals copied, gathering information from Indians and fellow antiquarians. From the mass of his correspondence and manuscripts, which have remained unpublished, Miss Murray selected some on three subjects: The Andastes, Indian names, and The Carantouan sites of Champlain's voyages.

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Archaeology

ANATOLIA THROUGH THE AGES—Erich F. Schmidt—*Univ. of Chicago Press*, 165 p., \$2. A remarkable sequence of cultures has been traced by Dr. Schmidt at the Alishar mound, in his excavations for the Oriental Institute. Beginning with Stone Age people of unknown antiquity, there follow mysterious alien newcomers, then Hittite culture, Phrygian, Medo-Persian, Greek, Roman, and Byzantine, and lately Turkish Moslems. Dr. Schmidt's "purely scientific report" will appear later. In this more informal account, he tells the story of the expedition and reconstructs a 55-century history of an "awe-inspiring human ant hill."

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Chemistry

COLLOID CHEMISTRY—Ed. by Jerome Alexander—*Chem. Cat. Co.*, 734 p., \$11.50. As the fourth and concluding volume of an ambitious and successful treatment of colloid chemistry in two hundred and two papers prepared by chemists from practically all the leading countries in the world, this book is an event in literature upon colloidal chemistry. This volume four is the second series of papers on technical applications which cover a large group of chemical processes that enter into the making of things that we use every day.

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General Science

The following concludes the booklists of the American Association for the Advancement of Science, compiled by Joseph L. Wheeler, chairman of the Association's booklist committee. Previous installments of this list have appeared in the *SCIENCE NEWS LETTER* for March 12, April 2, April 23 and May 14. The lists as printed here have been changed slightly from their original form to include important new publications. The full

set of twenty-seven annotated lists can be obtained by sending thirty cents in stamps to the American Association for the Advancement of Science, Smithsonian Institution, Washington, D. C.

Millikan, R. A. and Gale, H. G. **Elements of physics**; being a revision of the author's "Practical physics," done in collaboration with W. R. Pyle 509p. 1927 Ginn \$1.64.

Millikan, R. A. and others **A first course in physics for colleges** 676p. 4th ed. 1928 Ginn \$4.00.

Kimball, A. L. **College physics** 692p. 3d. ed. rev. 1923 Holt \$3.75.

Brownell, Herbert **Physical science** 313p. 1931 McGraw-Hill \$2.50.

Wind and the Weather

Brooks, C. F. **Why the weather?** 310p. 1924 Harcourt \$2.00.

Luckiesh, Matthew **The book of the sky** 236p. 1922 Dutton \$3.50.

Talman, C. F. **The realm of the air** 318p. 1931 Bobbs-Merrill \$4.00.

Humphreys, W. J. **Rain making and other vagaries** 157p. 1926 Williams & Wilkins \$2.50.

Humphreys, W. J. **Fogs and clouds** 104p. 1926 Williams & Wilkins \$4.00.

Laughton, L. C. C. and Heddon V. **Great storms** 259p. 1931 Payson \$1.25.

Boy Scouts of America **Weather** 73p. 1929 Merit Badge Service Boy Scouts of America \$.20.

Huntington, Ellsworth **Civilization and climate** 453p. 3d ed. 1924 Yale Univ. Press \$5.00.

Ward, R. DeC. **Climate, considered especially in relation to man** 380p. 2nd ed. rev. 1918 Putnam \$2.50.

Ward, R. DeC. **The climates of the United States** 518p. 1925 Ginn \$4.00.

Gregg, W. R. **Aeronautical meteorology** 405p. 2d. ed. rev. & enl. 1930 Ronald \$4.50.

Brunt, David **Meteorology** 112p. 1928 Oxford Univ. Press \$1.00.

Geddes, A. E. M. **Meteorology** 390p. 1921 Van Nostrand \$6.00.

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Additional Reviews on page 348

Science News Letter will secure for its subscribers any book or magazine published in the United States. Send check or money order to cover regular retail price (\$5 if price is unknown, change to be remitted) and we will pay postage in the U. S. Address: Library, Science Service, 21st and Constitution Avenue, Washington, D. C.

• First Glances at New Books

Continued from Page 347

Standardization

STANDARDS YEARBOOK, 1932—Bureau of Standards—*Govt. Print. Off.*, 394 p., \$1. The Standards Yearbook now in its sixth issue is taking its place along with the annual Smithsonian Report and other serial publications which perform a useful and important service in summarizing the state of present knowledge. A vast amount of important information is packed in this Yearbook. In addition to reports from international standardizing agencies, national standardizing laboratories in industrial bodies of a similar nature and the American federal and other governmental agencies, including the Bureau of Standards, there is an interesting symposium on standardization in communication.

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Horticulture

THE BACKYARD GARDEN—E. I. Farrington—*Stratford*, 191 p., \$1.50. With a nation turning (however reluctantly) toward the virtue of thrift, the backyard vegetable garden may be expected to come into its own again. Those who have forgotten how to take care of one, or who never learned, will find in this little book many useful suggestions.

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Horticulture

ANNUALS IN THE GARDEN—H. Stuart Orloff—*Macmillan*, 88 p., \$1.25. A worthy addition to the large Macmillan family of garden books, giving diagrams of simple garden-bed layouts and telling what to put in them and how to take care of them.

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Biography

THE BOYHOOD OF AN INVENTOR—C. Francis Jenkins—*Author*, 273 p. The inventor of television is a person with a delightful sense of humor and an insatiable curiosity about life. In his laboratory in Washington Mr. Jenkins is working to make television a practical thing for home and theatrical entertainment, but the diversity of his other interests constantly surprises his friends.

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Archaeology

AN ARCHEOLOGICAL SURVEY OF THE TWENTY-NINE PALMS REGION—Elizabeth W. Crozier Campbell—*Southwest Museum*, 93 p., 48 pl., 75c. A concise account of outstanding features of the archaeology in one region of Southern

California's desert area. Mr. and Mrs. Campbell have located more than 300 sites about the desert springs and waterholes, and have recovered a notable collection of pottery, basketry, textiles, ornaments, and objects of bone, wood, and stone.

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Geography

GUIDE TO PATHS IN THE BLUE RIDGE—*Potomac Appalachian Trail Club* (Washington), 305 p., \$2.50. An editorial committee under the direction of Harold Allen has produced a classic among guidebooks. It contains a detailed description of 506 miles of the Appalachian trail along the crest of the Blue Ridge in Virginia and Pennsylvania, abundant maps, articles on the geology, wild flowers and trees of the region by eminent authorities, and information for use in case of accident, illness and snakebites. Small size, thin, tough paper and a flexible binding that fastens the volume closed make it into a handbook convenient to carry on the trail.

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Archaeology

ABORIGINAL INDIAN POTTERY OF THE DOMINICAN REPUBLIC—Herbert W. Krieger—*Govt. Print. Off.*, 165 p., 56 pl. 75c. Pottery objects made by natives of Santo Domingo were distinctive from wares made on the neighboring islands of Cuba and Jamaica, and even to some extent different from Porto Rico pottery. Besides describing type objects, and analyzing form and design of Santo Domingan pottery, the author gives considerable background information regarding archaeology of the West Indies.

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General

THE NEW INTERNATIONAL YEAR BOOK, 1931—*Funk & Wagnalls*, 856 p., \$6.75. The thirtieth issue of the New International Year Book adds to the shelf of these valuable annual summaries of world progress in all fields.

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Ethnology

THE ISNEG—Morice Vanoverbergh—*Catholic Anthropological Conference, Washington, D. C.*, 80 p., \$1.25. An account of a Filipino tribe hitherto not adequately reported.

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Biography

LUSTY SCRIPPS—Gilson Gardner—*Vanguard*, 274 p., \$3.50. Although not the official biography of E. W. Scripps, the founder of the Scripps-Howard Newspapers and Science Service, this book gives a vivid picture of his striking personality and mind. Men of science will be peculiarly interested in the life of E. W. Scripps because of his confidence in the scientific method and his establishment of Science Service, the Scripps Institution of Oceanography, and the Scripps Foundation for Research in Population Problems at Miami University. In the newspaper world he is one of the great historical figures.

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Chemistry

INTRODUCTORY GENERAL CHEMISTRY—Stuart R. Brinkley—*Macmillan*, 565 p., \$3. A new college text written by the associate professor of chemistry at Yale University.

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Chemistry

PROCEEDINGS OF THE THIRD INTERNATIONAL CONFERENCE ON BITUMINOUS COAL—*Carnegie Institute of Technology*, Vol. I, 965 p., Vol. II, 1034 p., \$15. Here are presented reports of scientists and engineers from eleven countries on the newest developments in the uses of coal, with discussions from the Conference in Pittsburgh last fall. Economics of the industry is also considered at length.

Science News Letter, May 28, 1932

Engineering

PRACTICAL ICE MAKING—A. J. Authenrieth and E. A. Brandt—*Nickerson & Collins*, 202 p., \$3.50. The reader of wide interests will find worthwhile this description of ice plants and their operation, which was written especially for those who work with machinery. It is profusely supplied with photographs, drawings, charts and tables.

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Standardization

NATIONAL DIRECTORY OF COMMODITY SPECIFICATIONS, 1932—Bureau of Standards—*Govt. Print. Off.*, 548 p., \$1.75. This should be rated as the bible of purchasing agents and those who must set specifications for everything from cattle to sign boards. This directory prepared by the Bureau of Standards is a splendid example of the real service offered by federal government agencies.

Science News Letter, May 28, 1932